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ABSTRACT

A systematic procedure for obtaining objective data of nonverbal teaching behaviors focusing on specific behaviors is presented. Teacher behaviors, recorded on video-tape, are studied and evaluated for the following nonverbal behaviors: (1) use of proximity control in maintaining discipline; (2) emphasis on the need for eye contact as a speaker; (3) close proximity with children; (4) impact and effect of direct physical contact; (5) varying the stimuli within the classroom; and (6) impact and effect of teacher nonverbal behavior on the social, emotional, and psychological climate in the classroom. A code sheet of symbols for the use of the observer in checking facial expressions, eye movements, head movements indicating approval or disapproval, avoidance behavior, mannerisms, gestures, and nonverbal control movements is included in this document with instructions on its use. The instrument is designed primarily for the use of the teacher in evaluating his or her behavior patterns. (JD)

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FOCUSED OBSERVATION AND FEEDBACK OF NONVERBAL BEHAVIOR: A REPORT OF THE DEVELOPMENT OF AN INSTRUMENT DESIGNED FOR ANALYSIS OF TEACHER BEHAVIOR

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Dr. W. Henry Kennedy, Division Director, has been most encouraging and supportive as we applied for University grants and sought opportunity to present the instrument to many educators. His recognition of potential was an encouragement.

The study would have been incomplete without volunteers to establish the feasibility of training other educators to use the instrument. Judith Flanigan, Patricia Smothermon and Kenneth Simmons contributed many hours. They provided significant ideas for revision procedures for training and guidelines.

Finally, we could not have functioned without capable secretarial assistance. Special tribute must be given to those who so often labor many hours with unclear writing and numerous revisions. Countless errors were avoided because of their extra attention to detail. Thank you is insufficient for secretaries Marie Sebaly, Sally Beninati and Caroline Frederickson.

It is our sincere hope that other educators will use this study and instrument as a means to further development of analysis of teaching behavior. We realize this is only a small contribution in a fertile field that requires major attention.

B.T.B.
J.F.F.
W.L.G.

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CHAPTER I

INTRODUCTION

Language is a necessary commodity for teachers to convey concepts to students. The components of language include verbal, nonverbal and printed materials. Verbal behavior has been the subject of extensive study. These studies have established that verbal behavior does influence the social, emotional and psychological climate within the classroom. The study of verbal patterns continues to be of major concern to many researchers. Studies of teachers' nonverbal behavior patterns and influence in establishing the social, emotional and psychological climate have not been as extensive.

Communication studies have clearly established the importance of nonverbal behavior in influencing human interaction patterns. Therefore, this project was conceived to develop an instrument and procedures for assisting in the analysis of a teacher's nonverbal patterns. From the inception of the project, a dual use of the instrument was anticipated--i.e. (1) to facilitate research in analyses of teaching and (2) to provide a simplified means for a teacher's self-evaluation of personal nonverbal behavior.

Statement of the Problem

Analysis of teaching behavior requires the establishment of an objective procedure for obtaining data. Nonverbal objective analysis procedures thus far have proved to be cumbersome and exceptionally unwieldy for tabulation,

analysis of data, establishing inter-observer reliability coefficients and providing a simplified but sophisticated means of teacher self-evaluation. The specific problem studied was: The development of a systematic procedure for obtaining objective data of nonverbal teaching behaviors.

Significance of This Project

Teachers and teacher trainers have long recognized the importance and significance of nonverbal behavior. Descriptions of effective management techniques frequently include suggestions to the teacher for certain nonverbal behaviors. Among the items generally included are:

1. The use of proximity control in maintaining discipline.
2. Emphasis on the need for eye contact as a speaker.
3. The need for close proximity with children.
4. The impact and effect of direct physical contact.
5. Varying the stimuli within the classroom.
6. Impact and effect of teacher nonverbal behavior on the social, emotional and psychological climate in the classroom.

Although the significance and importance of nonverbal behavior is recognized by teacher trainers, there has been little systematic study of this phenomenon to determine the actual effect upon learning environment. The need for such careful study is evident in the efforts to describe the complex nature of teaching behaviors and their influences on the teaching-learning process. These data are necessary to determine the extent of teacher verbal and nonverbal behavior in establishing classroom climate and its effect on the learning that takes place by students. While the study does not attempt to examine data of this nature, it does, however, attempt to provide stimulus for research in these directions.

Development of the Project

Development of a nonverbal analysis and feedback procedure results from previous work by the researchers relative to the analysis of verbal behavior of classroom teachers. A preliminary instrument for nonverbal analysis was developed in 1975. This instrument provided the basis for a pilot study with student teachers during the 1976-77 academic year. A revised instrument was developed for study during 1977-78.

Video tapings of 21 student teachers were completed during their final weeks of student teaching. The validity and reliability of the proposed instrument was established through the utilization of these video tapes.

Purpose of This Project

The specific purpose of this project was: The development of a standardized, systematic instrument to provide objective data on the nonverbal behavior patterns of teachers. In addition, training procedures, reliability coefficient procedures, rules of tabulation and research possibilities were established.

Basic Assumptions

The focused observation and feedback instrument is based upon several assumptions. Among these are:

1. That there exists a non-spoken body language in a given culture which transmits meaning to others within that culture.
2. That this nonverbal "language" can be observed and classified.
3. That observers of teaching behavior can be trained to classify and measure nonverbals with accuracy and agreement.
4. That the utilization of a language of non language--i.e. the use

of symbols and abbreviations is less cumbersome, swifter and more specific than most conventional means of reporting nonverbal behavior.

5. That providing teachers with feedback relative to their nonverbal behavior with students should facilitate a more positive social, emotional and psychological climate of interpersonal interaction.
6. That guidelines and tabulation rules to govern procedures for the quantitative evaluation of qualitative data can be established.
7. That analysis of data will provide clues identifying effective teaching behaviors.
8. That analysis of nonverbal behavior will provide generalizations to guide the development of teacher education programs.
9. That similarities of nonverbal patterns of behavior can be determined which describe effective and ineffective teachers.
10. That student learning outcomes are specifically affected by positive and negative nonverbal teaching behaviors.

Definition of Terms

The following terms are specifically defined for the purpose of this project:

1. Observational Technique: refers to a procedure of systematic observation of classroom behavior.
2. Validity: an accurate record of behaviors which actually occur.
3. Reliability: an accurate recording of behaviors as determined by the inter-observer reliability coefficient.
4. Inter-observer Reliability Coefficient: the correlation obtained for the tabulation of nonverbal occurrences between two or more observers or groups of observers.

Participants in the Project

The study utilized video taped recordings of 21 student teachers from Michigan State University. Selection of participants was limited to the Metropolitan Detroit Area.

A cross section of students from elementary grade levels, junior high school and senior high school was selected. In addition, video recordings were made of student teachers in the specialized subject areas of elementary art, home economics, industrial arts, business education, physical education and elementary level speech pathology.

Participants and supervising teachers were provided a letter of explanation requesting permission for the video taping exercise (see Appendix A). It was the responsibility of the student teacher, supervising teacher and university coordinator to cooperatively select the class to be taped. Copies of the information requested and the taping instructions are provided in Appendix B.

Procedure of the Project

One member of the research team was assigned the responsibility of previewing all of the video tapes of student teachers. This was accomplished for the purpose of identifying potential sections for nonverbal analysis by the team. It also permitted the identification of tapes unsuitable because of poor recording quality. Key sections of the tapes were selected to illustrate different components of the instrument, and a preliminary tabulation of the nonverbal behavior was completed.

The next procedure was the tabulation of the nonverbal behavior by the three principal researchers. This was accomplished simultaneously by positioning the observers so as not to influence tabulations. These data

permitted the establishment of inter-observer reliability coefficients. Since the reliability coefficients were determined to be sufficient, the next step of the procedure was then implemented.

Three persons, who had not been a part of the extensive development process but were familiar with the basic instrument, were recruited to tabulate selected sections of the video tapes. Each person had used the preliminary instrument in providing feedback and analysis of nonverbal behavior to student teachers.

One video tape was used for the purpose of training these selected participants to achieve agreement of definition for the categories. After successful completion of this phase, they were then asked to tabulate seven video taped sections. Tabulations were completed simultaneously, but with the participants so situated as not to influence each other. The inter-observer reliability coefficients were developed and compared with the coefficients obtained for the principal researchers.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of this project was to develop an instrument to guide the tabulation of nonverbal teacher behavior. There are only a small number of studies specifically concerned with nonverbal behavior by teachers in classroom situations. Much of the research in nonverbal behavior has been completed with a primary concern for determining the effects of a counselor to counselee type of situation--i.e. a one-on-one setting. Teachers, however, must operate in a setting including a number of students, usually 25 or more per group and usually heterogeneously grouped. This immediately compounds the difficulty of controlling nonverbal behavior and accurately, objectively observing and coding such behavior.

A survey of the literature does demonstrate the relationship of nonverbal behavior to effective teaching and a continuing need for carefully detailed research to determine:

1. The effects of nonverbal teacher behavior on student behavior and learning.
2. The effects of nonverbal student behavior on teacher actions.
3. The relationship of nonverbal teacher behavior in establishing and maintaining an effective social, emotional and psychological classroom climate.

4. The procedures for providing objective data of teacher behavior with established standards of comparison.

Limitations on Nonverbal Research

Goldberg and Mayerberg[1] attempted to determine the different emotional reactions of students to nonverbal teacher behavior which was intended to be positive, neutral or negative in its effect. They were able to use two grade levels (grades 2 and 6) which included black and Caucasian students. They concluded that nonverbal teacher behavior contributes to the reactions of students. It was, therefore, suggested that further research is needed into procedures for assessing nonverbal teacher behavior.

McMahan[2] concluded that nonverbal actions dominated the interpretation applied by a listener to a speaker. It is the nonverbal, he suggests, that determines a person's perception and formation of inter-personal impressions and evaluations. It was suggested that nonverbal research should center on relationship effects rather than the content of nonverbal cues. A researcher is really interested in the meaning derived from nonverbal cues rather than determining the actual cues themselves.

Eckman[3] emphasized the need to understand a person's culture in the study of nonverbal communication. Since much of the research has been with white, middle-class college students, it is exceptionally difficult to apply

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[1]Gale Goldberg and Cathleen Kubiniec Mayerberg, "Emotional Reactions of Students to Nonverbal Teacher Behavior," The Journal of Experimental Education 42 (Fall 1973) :29-32.

[2]Eva M. McMahan, "Nonverbal Communication As A Function of Attribution in Impression Formation," Communication Monographs, November 1976, pp. 287-294.

[3]Bruce Eckman, "Making Valid Nonverbal Judgements," English Journal 66 (November 1977) :72-74.

any generalizations to other ethnic and racial backgrounds. He suggested research should be concentrated in the paralinguistic area--i.e. spacial relations, body movement, eye contact, facial cues and intonations of the language. Facial expressions are considered the most important with body movement, eye contact and spacial relations as the least significant. Eckman contends nonverbal communication to be idiosyncratic. In his view, nonverbal research will not yield significant educational generalizations.

Bochner and Kelly[4] advocated formation of inter-personal laboratories in order to accomplish behavioral change. They identified four properties that should govern the operation of such a laboratory: concrete experience, observation participation, abstract conceptualization and active experimentation. The study of nonverbal is considered as a "process-like" procedure enabling a person to "get outside" himself and be able to describe his behaviors. They have identified five observable skills within the inter-personal dimension: empathic communication, descriptiveness, owning feelings and thoughts, self-disclosure and behavioral flexibility. The process of combining research and teaching is intended to avoid socio-cultural norms and attitudes as detriments to achieving inter-personal competence.

Summary

Limited progress has been made in the study of nonverbal behavior. There is increasing recognition of its importance and in developing literature providing guidance in the evolving techniques of analyzation.

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[4]Arthur P. Bochner and Clifford W. Kelly, "Interpersonal Competence: Rationale, Philosophy, and Implementation of a Conceptual Framework," The Speech Teacher, November 1974, pp. 279-301.

Measurement and Coding Systems

Coding of nonverbal behavior is still in its infancy. Efforts include the development of time measurement sequences, coding systems and guides for making valid judgments.

Eckman[5] stated that nonverbal behavior can only be characterized in positive fashions. He suggested the use of arbitrary codes signifying positive, neutral and negative categories for verbal behavior. Nonverbal behavior, in his view, cannot have the same dimensions as verbal behavior. He concluded, therefore, that nonverbal communication must use an analogic code. This is defined as "... one which uses signs that are somewhat similar (analogous) to that which they signify."[6] Therefore, the only possible judgment for a tabulator of nonverbal behavior is to determine whether an act is long or short, or hard or soft. Exactness, he suggested, is not considered possible or feasible.

Abraham and Schlitt[7] recognized that objective analyzation of teaching performance is exceptionally difficult. This is especially true if the primary purpose of assessing classroom effectiveness is for self-evaluation and the establishment of a personal improvement program. These purposes increase the need for ground rules to be established to govern the means of assessing teaching behavior.

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[5] Eckman, "Making Valid Nonverbal Judgements," pp. 72-74.

[6] Ibid., p. 72.

[7] Michael R. Abraham and Dorothy M. Schlitt, "Verbal Interaction: A Means for Self Evaluation," School Science and Mathematics, November 1973, pp. 678-686.

Breed and Colaiuta[8] used a 20-second time interval as a base of observing the nonverbal behavior of students. This procedure was used in a study to determine the relationship between teacher nonverbal behavior and student comprehension, and the seating choice by a student as related to attention and behavior. The coders were judging the students' nonverbal behavior. A thirteen category behavior list was used with tabulations being made for each student selected during the 20-second interval.

Chaikin and others[9] developed a procedure to determine the number of seconds out of a possible 300 seconds that an individual subject engaged in selected nonverbal behaviors. Apparently, any one of the selected behaviors would generate data.

Loss[10] concluded it is possible to identify and define nonverbal forms of communication. She reached four major conclusions:

1. Physical nonverbal components of a teacher may be reliably recorded.
2. Physical nonverbal data does provide accurate descriptions of events and teaching style.
3. Teachers are frequently inconsistent with their claimed preference for teaching style.
4. There is a high degree of agreement between a teacher's nonverbal behavior and the nonverbal behavior of the students.

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[8]George Breed and Victoria Colaiuta, "Looking, Blinking, and Sitting Nonverbal Dynamics in the Classroom," Journal of Communication 24 (Spring 1974) :75-81.

[9]Alan L. Chaikin, Edward Sigler, and Valerian J. Derlega, "Nonverbal Mediators of Teacher Expectancy Effects," Journal of Personality and Social Psychology 30 (July 1974) :144-149.

[10]Suzanne Perry Loss, "Nonverbal Behavior of Teachers and Students," American Vocational Journal 48 (December 1973) :23-24, 27.

Feldman[11] concluded that untrained observers can spot behaviors which suggest that students can be aware of a teacher's underlying feelings.

Summary

There does not seem to be a consistent pattern to code nonverbal behavior. A coding system or unit of measurement selected by an individual researcher apparently depends upon the objectives of the research. It has yet to be determined if, in fact, a coding system may provide for analyzation of nonverbal behavior to formulate educational generalizations.

Nonverbal Cues Investigated

Researchers have concentrated extensively upon selected nonverbal behaviors for investigation. Facial expressions and eye contact have been among the most frequently detailed cues examined. Others include: interpretation of nonverbal cues, relationship of nonverbal cues to student learning, relation of nonverbal cues based upon sex of teacher, cultural differences, high and low achievers as related to teacher nonverbal behavior and the consistency of nonverbal cues.

Beebe[12] studied the importance of eye contact in relation to perceived credibility of a speaker. He concluded that increases in eye contact enhanced the listener's belief of the speaker's credibility. Further, he inferred that all other nonverbal characteristics are basically affected by the eye contact maintained and that "undesirable" characteristics seemed related to eye contact.

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[11]Robert S. Feldman, "Nonverbal Disclosure of Teacher Deception and Interpersonal Affect," Journal of Educational Psychology 68 (December 1976) :807-816.

[12]Steven A. Beebe, "Eye Contact: A Nonverbal Determinant of Speaker Credibility," The Speech Teacher, January 1974, pp. 21-25.

Starkweather[13] identified four primary nonverbal behaviors as deserving significant attention in attempting to deal with correcting ineffective nonverbal communication. These four were: eye movement, timing, body movement and voice.

Kachur and Sweet[14] suggested that teachers are not aware of their use of nonverbal behaviors. They listed a significant number of possible behaviors under the following categories: head gestures, facial expressions, arm-hand-finger gestures, touch, eye contact, distance-location, time and environmental control.

Good and others[15] studied the effects of three variables as related to nonverbal behavior. These variables were: subject matter of teacher, sex of teacher and sex of student. They concluded that differences between male and female teachers may be related more to the fact that they are teachers rather than any relationship specifically to their sex. There were some differences in how male and female teachers provide support to students, but this seemed to be related more to high achievers versus low achievers. Low achieving boys were consistently treated in negative ways. It was suggested that it might be possible to train students to provide certain nonverbal behaviors in an effort to change the perception of the teacher toward the student.

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[13]C. Woodruff Starkweather, "Disorders of Nonverbal Communication," Journal of Speech and Hearing Disorders 42 (November 1977) :535-546.

[14]Donald S. Kachur and Bruce W. Sweet, "Nonverbal Discipline," School and Community, April 1974, p. 31.

[15]Thomas L. Good, J. Neville Sikes and Jere E. Brophy, "Effects of Teacher Sex and Student Sex on Classroom Interaction," Journal of Educational Psychology 65 (August 1973) :74-87.

Summary

There are hundreds of nonverbal behaviors. Researchers have been selective for individual study purposes, and this process is now beginning to provide some specific data relative to the effect of teacher nonverbal behavior.

Conclusion

Research relative to tabulating, analyzing and interpreting nonverbal behavior in classroom settings is in its infancy. There is as yet no agreement on a unit of measurement, procedures, interpretative rules or generalized stability of any conclusions reached. It is clearly recognized, however, that nonverbal behavior is extremely important in the effectiveness of teachers. The scope and variability of nonverbal behavior have prevented investigators from generating extensive research. The need for research is clearly evident.

CHAPTER III

METHODOLOGY OF THE STUDY

Introduction

The work during 1977-78 was divided into three phases:

Phase I: Establishment of preliminary inter-observer reliability coefficient correlations between the primary research participants (Wilma Gillespie, Judd Field and Banks Bradley: referred to as "primary researchers").

Phase II: Development of inter-observer reliability coefficients for primary researchers from tabulating video tapes of student teachers.

Phase III: Training and development of inter-observer reliability coefficients for three selected participants (Judy Flanigan, Kenneth Simmons and Patricia Smothermon: referred to as "selected participants") using selected portions of the video tapes used in Phase II.

Group inter-observer reliability coefficients were established between the primary researchers and the selected participants.

The selected participants were employed by Michigan State University as coordinators or clinical consultants to supervise student teaching. This involvement gave them some familiarity with the instrument and reduced the training time required.

Phase I

The first and most important phase of the year's research efforts was to determine if inter-observer reliability could be established for the three primary researchers. The instrument had been used for some time in its revised form in classroom settings as a means of providing feedback to student teachers. In order to accomplish Phase I of the research, selected tapes of teacher candidates engaged in micro-teaching sessions from the Competency Based Teacher Education Laboratory at Michigan State University were used. Each person operated independently during the tabulation session. Immediate comparisons as to the general results were made, and statistical data for the reliability coefficients were developed.

The results of this phase of the research were encouraging. It appeared that the instrument contained a category for almost all nonverbal behavior that was observed. The tabulations indicated that satisfactory inter-observer reliability coefficients could be obtained.

Phase II

Permission was received from 21 student teachers and supervising teachers to video tape a complete class session taught by student teachers during the latter weeks of student teaching of Winter Term, 1978. Length of the sessions varied from approximately 15 minutes to one hour.

All of the tapes were carefully screened by one member of the research team (Bradley) in order to determine the feasibility of using the tape for inter-observer reliability work. This initial screening was to determine clarity of sound, visibility of subject, quality of the video taping and identification of selected portions for tabulation.

Seven of the 21 tapes were selected to provide a cross section of elementary, junior high, high school and speech pathology for tabulation. The tapes were selected according to: clarity of the tape, number of non-verbal categories appearing, length of section selected for tabulation, grade level and subject matter being taught.

The research team devoted approximately five consecutive hours to the process of tabulating the selected tapes. Participants tabulated each session simultaneously, maintaining independence from one another. Upon completion of each tape, comparisons were immediately made to determine if significant tabulation differences existed. This permitted discussion of category meanings and definitions. Notes were taken on these conversations to provide input for the clear definition of categories and the development of ground rules. Finally, statistical computations of reliability coefficients were completed.

Phase III

Six sections from the tapes were selected to be used for training and inter-observer reliability determination for the selected participants.

One tape was designated and specifically labeled as a training tape. After preliminary discussion of the category definitions, selected portions of this tape were tabulated for practice. Extensive discussion reviewed the tabulation procedure and category definition. The same section of the tape was shown a second time, and another tabulation was completed. Careful discussion of the categories and tabulations was conducted in order to identify any remaining differences in interpretation or definition. A second portion of the training tape was tabulated, followed by final discussion of category meanings and definitions. After the completion of the training tape exercises, sections of additional tapes were tabulated by the

participants. After each tabulation, immediate comparisons were made in order to determine approximate agreement. Computations of inter-observer reliability coefficients were completed.

Treatment of the Data

Three procedures were used to determine inter-observer reliability coefficients. The purpose of establishing a reliability coefficient was to determine the objectivity of the observational technique between observers. These statistical measurements have been used in a number of research projects to determine inter-observer reliability agreement.

Two different divisions of Scott's Formula were used:[1]

1. P_o = (percentage of judgments on which coders agree, out of the total number of judgments.)
2. The "P_o" was determined by:

$$\frac{\text{Number of categories containing Observer Tabulations}}{\text{Total number of categories possible--i.e. 14.}}$$

The formula provided a reliability coefficient between observers relative to tabulation within the 14 categories. This procedure permitted immediate determination of the sufficiency of the categories for tabulation of nonverbal behavior.

The second part of Scott's Formula was more involved. The formula is:

$$\pi = \frac{P_o - P_e}{1 - P_e}$$

"P_o" was the observed percent agreement determined by the formula described above. "P_e" was determined from the frequency of tabulations by each

[1] William A. Scott, "Reliability of Content Analysis: The Case of Nominal Scale: Coding," Public Opinion Quarterly, Fall 1953, pp. 321-25.

observer. Scott's procedure was also used to make the "P_e" determination.

Inter-observer reliability coefficients were checked by using a formula developed by Emmer and Millett.[2] This formula is:

$$\text{Agreement} = \frac{A-B}{A+B}$$

The formula requires the total tabulation for each observer. "A" is always the larger regardless of the observer involved.

The advantage of using this formula is the ease by which inter-observer reliability can be quickly established. The Emmer and Millett formula provides a quick means whereby observers may check tabulations in order to determine the reliability of their observations.

The formula was used in this study in order to develop a comparison between the three primary researchers with the selected participants. This permitted determination of inter-observer reliability occurring between the two groups.

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[2] Edmund T. Emmer and Gregg B. Millett, Improving Teaching Through Experimentation: A Laboratory Approach (Englewood, N.J.: Prentiss Hall, 1970), p. 23.

CHAPTER IV

PRESENTATION AND INTERPRETATION OF THE DATA

Phase I

Inter-observer reliability data from Phase I are reported in Table One.[1]

TABLE 1. INTER-OBSERVER RELIABILITY COEFFICIENTS FOR THE PRIMARY RESEARCHERS (GILLESPIE, FIELD, BRADLEY) FOR NONVERBAL BEHAVIOR OF TEACHER CANDIDATES IN MICRO TEACHING SESSIONS AS TABULATED FROM VIDEO TAPES

Number Of Tape/Teacher	Coefficient By Categories	Coefficient For Gillespie/ Field	Coefficient For Gillespie/ Bradley	Coefficient For Bradley/ Field	Coefficient By Tabulation
1/1	.79	.92	.79	.86	.64
1/2a	.79	.71	.86	.86	.63
1/2b	1.00	1.00	1.00	1.00	1.00
2/3	.86	1.00	.86	.86	.81
3/4a	.79	.93	.86	.79	.73
3/4b	.86	.93	.93	.86	.82
4/5	.64	.64	.93	.64	.54

[1] In reading the tables, lower case letters are used to designate different sections of a tape tabulated for the same teacher. Example: $1/2_a$ is for Tape #1, Teacher #2, "a" section of the tape. The designation, $1/2_b$ identifies the same tape and teacher but is the "b" section of the tape.

With one exception (4/5), reliability coefficients were consistently acceptable. There was a lower inter-observer reliability coefficient when the total frequency of tabulation was considered. Frequency count among observers of an actual nonverbal occurrence was expected to differ slightly. For the purpose of this study, coefficients above .60 by categories and by tabulations were required.[2]

The detailed data for each session indicated that differences tended to occur only in categories with three tallies or less by one observer. In categories with more than three tallies by one or more observers, the inter-observer reliability coefficient was consistently .93 or 1.00, with only one exception. These data are reported in Table Two.

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[2]Donald M. Medley and Harold E. Mitzel, "Measuring Classroom Behavior by Systematic Observation," Handbook of Research on Teaching, ed. N. L. Gage (Chicago: Rand McNally and Company, 1963), pp. 247-328.

TABLE 2. INTER-OBSERVER RELIABILITY COEFFICIENTS BASED ON CATEGORIES WITH THREE OR MORE TABULATIONS, FOR THE PRIMARY RESEARCHERS (GILLESPIE, FIELD, BRADLEY) FOR NONVERBAL BEHAVIOR OF TEACHER CANDIDATES IN MICRO TEACHING SESSIONS AS TABULATED FROM VIDEO TAPES

Number Of Tape/Teacher	Coefficient By Categories	Coefficient For Gillespie/ Field	Coefficient For Gillespie/ Bradley	Coefficient For Field/ Bradley	Coefficient By Tabulation
1/1	1.00	1.00	1.00	1.00	1.00
1/2a	.86	.86	.86	1.00	.82
1/2b	1.00	1.00	1.00	1.00	1.00
2/3	1.00	1.00	1.00	1.00	1.00
3/4a	1.00	1.00	1.00	1.00	1.00
3/4b	1.00	1.00	1.00	1.00	1.00
4/5	.93	.93	1.00	.93	.91

By discarding the categories with three or less tallies by two or more observers, the inter-observer agreement was high. The discards represented from two to three percent of the total tabulations or approximately six to ten individual frequencies from 150 to 250 tabulations.

Phase II

This phase of the research was considered critical for the instrument development since it would involve recording the nonverbal behavior from video tapes of actual classroom teaching situations. Further, this phase provided the researchers with an opportunity to demonstrate the consistency of reliability of tabulations among different levels of teaching and teaching situations. The inter-observer reliability for Phase II is reported in Table Three.

TABLE 3. INTER-OBSERVER RELIABILITY COEFFICIENTS FOR THE PRIMARY RESEARCHERS (GILLESPIE, FIELD, BRADLEY) FOR NONVERBAL BEHAVIOR OF TEACHER CANDIDATES IN CLASSROOM SETTINGS AS TABULATED FROM VIDEO TAPES

Number Of Tape/Teacher	Coefficient By Categories	Coefficient For Gillespie/ Field	Coefficient For Gillespie/ Bradley	Coefficient For Field/ Bradley	Coefficient By Tabulation
2/2a	.79	.86	.86	.86	.72
2/2b	.79	.93	.86	.79	.73
2/2c	.93	.93	1.00	.93	.91
2/2d	.64	.86	.71	.71	.56
3/3a	.71	.71	.86	.79	.63
3/3b	.71	.86	.71	.79	.63
3/3c	.71	.79	.93	.79	.64
3/3d	.86	.86	.93	.93	.83
4/4a	.71	.79	.86	.79	.59
4/4b	.86	.93	.93	.86	.83
4/4c	.64	.93	.71	.64	.48
4/4d	.86	.93	.93	.86	.82
9/9a	.79	.79	.86	.93	.75
9/9b	.64	.71	.79	.79	.55
11/11a	.64	.79	.71	.64	.47
11/11b	.86	.93	.86	.93	.80
12/12a	.71	.86	.71	.86	.65
12/12b	.79	.86	.93	.86	.76
21/21a	.93	.93	1.00	.93	.89
21/21b	.71	.86	.71	.86	.65

Inter-observer reliability coefficients were above .60, except for 2/2, 4/4, 9/9, and 11/11. These lower reliability coefficients resulted primarily from lower coefficients for the categories. Again, it should be noted that in every instance when categories with less than three tabulations by one or more observers were dropped from consideration, inter-observer reliability for the categories was above .93 or 1.00.

When the coefficient by category was raised, the total tabulation coefficient was increased. For example, using $4/4_c$ data, the categories' coefficient increased to .93 from .64 when categories with less than three tabulations by two or more observers were dropped from consideration. The total tabulation increased to .90 from .48.

Phase III

The selected participants for Phase III had less experience with the instrument than the primary researchers. They had participated in other phases of the development and had utilized the instrument in providing feedback to student teachers. After training, these participants tabulated only selected portions of tapes. These data are reported in Table Four.

TABLE 4. INTER-OBSERVER RELIABILITY COEFFICIENTS FOR SELECTED PARTICIPANTS (FLANIGAN, SIMMONS, SMOTHERMON) FOR NONVERBAL BEHAVIOR OF TEACHER CANDIDATES IN CLASSROOM SETTINGS AS TABULATED FROM VIDEO TAPES

Number Of Tape/Subject	Coefficient By Categories	Coefficient For Flanigan/ Simmons	Coefficient For Flanigan/ Smothermon	Coefficient For Simmons/ Smothermon	Coefficient By Tabulation
4/4a	.93	.93	.93	1.00	.94
4/4b	.79	.80	.86	.86	.72
4/4c	.86	.93	.86	.93	.83
9/9	.93	1.00	.93	.93	.92
11/11	.71	.79	.79	.86	.62
12/12	.71	.79	.93	.79	.67
21/21	.93	1.00	.93	.93	.87

The data for the training tape are presented in order to demonstrate the immediate reliability that occurred between the observers. Approximately 25 minutes of discussion to define categories and tabulation procedure occurred prior to the beginning of the actual tabulation exercises. It was immediately noted that the observers consistently had high correlations for the 14 categories.

Again, when all categories with less than three tabulations were dropped, inter-observer reliability coefficients were consistently .93 or 1.00. These data are illustrated in Table Five.

TABLE 5. INTER-OBSERVER RELIABILITY COEFFICIENTS, BASED ON CATEGORIES WITH THREE OR MORE TABULATIONS, FOR SELECTED PARTICIPANTS (FLANIGAN, SIMMONS, SMOTHERMON) FOR NONVERBAL BEHAVIOR OF TEACHER CANDIDATES IN CLASSROOM SETTINGS AS TABULATED FROM VIDEO TAPES

Number Of Tape/Subject	Coefficient By Categories	Coefficient For Flanigan/ Simmons	Coefficient For Flanigan/ Smothermon	Coefficient For Simmons/ Smothermon	Coefficient By Tabulation
4/4a	1.00	1.00	1.00	1.00	1.00
4/4b	1.00	1.00	1.00	1.00	1.00
4/4c	1.00	1.00	1.00	1.00	1.00
9/9	1.00	1.00	1.00	1.00	1.00
11/11	.93	.93	.93	.93	.91
12/12	1.00	1.00	1.00	1.00	1.00
21/21	1.00	1.00	1.00	1.00	1.00

The high reliability coefficients obtained by dropping categories with less than three tabulations by one or more of the observers, demonstrated exceptional reliability in recording nonverbal behavior. Further, the validity of the 14 categories of the instrument was supported by the reliability coefficients.

Phase III: Comparison of Group I with Group II

Group I is defined as the primary researchers (Gillespie, Field, Bradley), and Group II (Flanigan, Simmons, Smothermon) are selected participants. These comparisons are shown only for the total tabulation per group. Emmer and Millett's formula was used to demonstrate the inter-observer reliability coefficient between different groups of observers with

differing levels of experience and proficiency. These data are reported in Table Six.

TABLE 6. INTER-OBSERVER RELIABILITY COEFFICIENTS FOR THE PRIMARY RESEARCHERS (GROUP I: GILLESPIE, FIELD, BRADLEY) AND SELECTED PARTICIPANTS (GROUP II: FLANIGAN, SIMMONS, SMOTHERMON) FOR TOTAL TABULATION OF NONVERBAL BEHAVIOR OF TEACHER CANDIDATES AS TABULATED FROM VIDEO TAPES

Number of Tape/Subject	Coefficient
4/4	.89
4/4	.93
4/4	.89
9/9	.79
11/11	.85
12/12	.94
21/21	.78

The formula by Emmer and Millett[3] permitted correlation of the actual number of tabulations recorded. With the consistency of the inter-observer reliability coefficients between the two groups being above .75, it was concluded that inter-observer reliability coefficients were established.

It was again noted that the primary differences in lower inter-observer reliability coefficients for categories were significantly changed when tabulations and categories with less than three tabulations were dropped. In many instances, an observer would tabulate only one occurrence of a particular category while observers would record none. This is not to say that these occurrences do not happen, but it is recognized that with the

[3]Emmer and Millett, Improving Teaching Through Experimentation: A Laboratory Approach, p. 23.

rapidity and often simultaneous nonverbal behavior occurring it is possible for an observer to miss one occurrence while recording other behaviors. Frequently, it is also necessary for an observer to mentally keep track of one set of occurrences while tabulating other behaviors.

Conclusion

Inter-observer reliability coefficients were computed. These data indicate a pattern of consistency for inter-observer reliability coefficients. When tabulations totaling less than three in a category by the observers are dropped, all reliability coefficients become consistently above .93. These coefficients support the conclusion that the instrument is valid and reliable for recording nonverbal teacher behavior by trained observers.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

Summary

The objectives for the project in 1977-78 were: To continue instrument development and refinement, and to establish validity and reliability of the instrument.

Two groups of observers were used in order to establish the inter-observer reliability. Group One consisted of the primary researchers, Mrs. Wilma Gillespie, Dr. Judd Field and Dr. Banks Bradley. They have been involved in continuous collaboration during the process of instrument development. The second group was recruited to test the instrument. Mrs. Judith Flanigan, Mr. Ken Simmons and Miss Pat Smothermon were cluster consultants or assistant coordinators for Michigan State University. They are experienced teachers with extensive experience in supervising student teachers.

Procedures were established to secure video tapings of student teachers. These tapes were the primary source of tabulation for non-verbal behaviors by which the inter-observer reliability coefficients were established.

Findings

The principal findings of the project for instrument development during 1977-78 are:

1. The 14 categories in the nonverbal instrument are the behaviors that generally occur by teachers in any given classroom situation.
2. Certain categories occur infrequently in teaching situations. Specifically, these are categories two and three. All other categories occur at differing frequencies and are sufficiently important to be considered as part of the total 14.
3. The instrument can be used for obtaining objective data for analyzing teaching behavior.
4. Additional refinement of the instrument should occur with further utilization in research or self-evaluation situations.
5. The inter-observer reliability coefficients for the categories are generally above .70. This coefficient can be significantly raised by dropping categories with three or less tabulations by one or more of the observers. When these categories are dropped from consideration, inter-observer reliability coefficients are generally .93 or 1.00.
6. Inter-observer reliability coefficients are generally above .70 for total tabulations of the categories. The consistency with which these correlations have remained high indicated that identification and tabulation by observers is possible and consistent when using the instrument.
7. The inter-observer reliability coefficients for different groups of observers was consistently above .75. This indicated that it is possible to train observers in the identification and tabulation procedures necessary to effectively use the instrument.
8. The instrument utilization procedures are not difficult to master. Teachers, therefore, can effectively and quickly develop self-evaluation skills.

Conclusions

The Focused Observation Instrument for Nonverbal Behavior has been sufficiently tested to demonstrate its validity and reliability as a means of assisting in the analyzation of nonverbal behavior. The consistency of satisfactory inter-observer reliability coefficients demonstrated that the categories are satisfactorily defined, are valid categories which occur in teaching situations and were consistently recorded by observers using the instrument.[1]

Development of the instrument continues to be necessary to identify the characteristics of effective nonverbal behavior and its relationship with student learning and classroom climate. Accumulation of research data should assist in the accomplishment of this objective. In addition, such data may provide correlations between nonverbal and verbal behaviors and their impact on pupil learning.

Recommendations

As a result of the completion of the objectives for 1977-78, the developers make the following recommendations:

1. The instrument should be utilized in conducting research of

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[1]The authors presented the Focused Observation Instrument to a group of teacher educators at the 1978 National Convention of the Association of Teacher Educators. As a result, Dr. Eldon Drake, Director of Student Teaching, Utah State University, and Mr. Jim Riley, a supervisor of student teachers, have used the instrument in classroom situations. Their conclusions have resulted in a decision to use the instrument again during fall quarter, 1978.

The authors have received a number of requests for information concerning the instrument. The introductory information has been published by ERIC, September, 1978. (ED 157953)

Through in-service programs, teachers have received instruction about use of the instrument. Informal feedback has indicated teachers do use the instrument to obtain data evaluation of their nonverbal behavior.

nonverbal behavior by teachers to determine the effectiveness of teaching styles as it relates to student learning and classroom climate.

2. The instrument should be used for self-evaluation by an individual teacher and/or peer evaluation.
3. The instrument should be used in the preservice training of teachers.
4. A careful and extensive study should be completed in order to determine the relationship between the verbal and nonverbal behaviors of teachers. The research should be related to the study of the variables of classroom climate, student learning and type of teaching situation. Other dependent variables could include: supervisory evaluations; years of experience; source of training; sex of teacher; sex of students; socio-economic-social background of students, teacher, community; and standardized test results for students, such as the Iowa Basic Skills Test or the Michigan Skills Testing Program.

Implications

The consistency of the inter-observer reliability coefficients indicated that the categories were sufficiently defined and valid to promote the use of the instrument for further research and for self-evaluation of teachers. The inter-observer reliability coefficients were surprisingly high when generalized across the major categories recognized by observers. The consistency of observers at different levels of experience with the instrument clearly supported its simplicity and the capability of immediate utilization with minimum training and background.

While not directly related to the purposes of this project, other implications have become evident. These are:

1. There is a need for technical assistance in securing recordings in the classrooms to preserve data for analyzation purposes. Trained and supervised technicians are essential to projects of this nature.
2. Nonverbal behavior has significant impact on instruction. It is the key item that determines the classroom climate in any given situation. Students immediately react to nonverbal behavior. Interpretation of a teacher's nonverbal behavior appears to be a primary means of determining the credibility of a teacher by the student. Eye contact, appropriate gestures, the use of smiles and the lack of idiosyncratic behaviors seem essential if an effective, positive atmosphere of learning is to be maintained.
3. Nonverbal controls are essential for classroom management techniques. Teachers who rely primarily upon verbal means of maintaining discipline interfere with the educational process. Nonverbal control has the least interference and tends to be effective if consistently employed by a teacher. It is recognized that such controls must be supplemented, when necessary, by verbal action.
4. The instrument does not determine effective teaching. It does, however, provide an objective record of nonverbal behavior. Value judgments should be made based upon stated assumptions which describe effective teaching.

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APPENDIX A

LETTER TO SUPERVISING TEACHERS AND STUDENT TEACHERS REQUESTING THEIR PARTICIPATION IN THE PROJECT

TO: Selected Supervising Teachers and Student Teachers

FROM: Drs. Banks Bradley and Judd Field

Drs. Field and Bradley are in the second year in the development of an analysis of teaching instrument. We are now at a point where the cooperation of teachers is essential if we are to proceed. Our request will not require deviation from the usual class procedures. Students in the class are not involved, except as part of the usual class activities.

We are requesting a video tape of the student teacher be made during the 9th or 10th week of the experience. Descriptions of the guidelines are attached. This tape may be used in the usual manner for feedback procedures for the student teacher.

The supervising teacher and university coordinator will be asked to complete a short rating form for the student teacher after the regular student teaching report form has been completed. This form is one page long and requires only a precise judgment by the rater. The rating is made independently by each rater.

We make the following guarantees to student teachers, supervising teachers, and coordinators/consultants:

1. The video tape may be used by the coordinator/consultant and supervising teacher, as in previous terms, as a method to assist in analyzing teaching.

2. After the video tape is released to Drs. Field and Bradley, it will be viewed only by the authorized research team. Its contents will not be released or used in any general instructional use in teacher education.

3. If there are publications resulting from the research study, individuals will never be identified by name or in any method that would permit the identification of an individual participant.

4. The video tape will be erased by the researchers after the completion of this phase of the research (expected to be completed by September 1, 1978).

5. The rating form will not be used to determine the content of the student teaching report, nor be a part of the permanent record of the student teacher. (Note: the rating form will not be distributed until after the student teaching report is completed.)

6. Data will be reported in grouped format--i.e. elementary, secondary, or special areas.

Exact details of the research project cannot be provided because of the possible bias that could result. For this reason, the rating form and other details of the instrument under development cannot be provided until such time as not to cause a bias. Any participant may refuse to participate. We hope you will want to assist.

Please telephone if you have questions.

Dr. Judd Field: Office 557-1044 - Home 264-8924
Dr. Banks Bradley: Office 773-3500 - Home 624-5227

BB/sb

APPENDIX B

VIDEO TAPING INSTRUCTIONS

SUPPLIED TO VOLUNTEER PARTICIPANTS

TAPING INSTRUCTIONS

Secondary

1. Begin and end video tape with the class period as designated by the school bell. Do not tape study periods or group work. Tape record only teacher-centered instruction. Example: discussions, presentations, or lectures, reviews, drill and practice, or demonstrations.

2. Do keep the camera focused around the teacher.

Elementary

1. Begin the video tape prior to the beginning of a teacher-centered activity. For example, if a reading group is to be taped, start the tape before the teacher requests the reading group to assemble. Tape record only teacher-centered instruction. These may be large or small groups. Examples: discussions, reading groups, demonstrations, teacher presentations, or drill and practice.

2. Do keep the camera focused around the teacher.

APPENDIX C

THE FOCUSED OBSERVATION INSTRUMENT FOR NONVERBAL BEHAVIOR,

DEFINITION OF THE FOURTEEN CATEGORIES AND

TABULATION GUIDELINES FOR OBSERVERS

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Division of Student Teaching and Professional Development
Michigan State University
East Lansing, Michigan

MICHIGAN STATE UNIVERSITY
College of Education
Division of Student Teaching and Professional Development
Dr. Banks Bradley/Dr. Judd Field

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* FOCUSED OBSERVATION: NONVERBAL TEACHING BEHAVIOR-Tally Sheet *

****

Teacher:_____ Observer:_____

Grade/Subject:_____ Time:_____ Date:_____

Type of Class:_____

1.		2.	
3.		4.	
5.		6.	
7.		8.	
9. Av		10. Ap	
11. Id		12. G	
13. NVC		14. VS	

COMMENTS:

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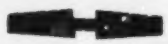
MICHIGAN STATE UNIVERSITY
College of Education
Division of Student Teaching and Professional Development
Dr. Banks Bradley/Dr. Judd Field

FOCUSED OBSERVATION: NONVERBAL TEACHING BEHAVIOR
Description of Symbols and Abbreviations

1.	Frowning; facial expressions of disgust, frustration, impatience or exasperation.
2.	The teacher presents a warm, friendly smile or pleasant grin to the class or an individual.
3.	Those facial expressions which are sarcastic, negative, tension creating and tend to discourage pupils from continuing to answer or discuss. Laughter or humor which is at the expense of the class or an individual.
4.	Those facial expressions which are positive, relaxing or tension-breaking and encourage pupils to continue to answer or discuss. Laughter or humor which is not at the expense of someone.
5.	Eye movement avoiding direct eye contact with pupils; looking out a window or at the ceiling, wall or floor. Leaving the impression of not listening, preoccupation or disinterest. Includes a detached appearance of pondering or thoughtfulness.
6.	Eye contact with an individual, group or the class. Eye contact at eye level. Giving the appearance of listening. Looking at pupil when talking or while pupil is talking.

7. 	Shaking of the head in a back-and-forth motion. Signals of disagreement, non-acceptance or disapproval.
8.	Nodding of the head in an up-and-down fashion. Signals of approval, agreement of acceptance of pupil behavior or statements.
9. Av	Avoidance. Aloofness or ignoring. Keeping a physical barrier between teacher/pupil. Avoids pupil touch or approach. Body contact which is punitive in nature.
10. Ap	Approach. Movement toward class or pupil. Circulates among pupils but not to distraction. Body contact which is warm and friendly such as touching pupil to signal approval.
11. Id	Idiosyncrasies that are usually distracting, such as: body movements, excessive manipulation of objects or nervous mannerisms, and inappropriate or incongruent behavior.
12. G	Gestures which tend to vary the stimuli--but are not distracting.
13. NVC	Nonverbal control. Moving toward a disturbance. Eye contact in the form of behavior control, such as a stare or glare in the direction of a disturbance. Placing hand on desk of a pupil or physically moving the pupil's chair.
14. VS	Manipulating the environment or an object which tends to vary the stimuli. May be use of the chalkboard, visual aids or a demonstration.

TABULATION GUIDELINES FOR OBSERVERS

1. Category 1 is tabulated when facial or body expression is demonstrating dissatisfaction with students' conduct or work. A shift to Category 3 may occur when the length of the expression is having impact on relationships.
2. Category 2 is tabulated for a smile or laughter. When a smile is of lengthy duration, a tally in Category 4 would also be recorded.
3. Each specific separate eye contact focus would be tallied in Category 6. Eye contact should be with a specific student. Judgment must be exercised when eye movement is rapid or seems to be moving generally across all students. The teacher may be avoiding eye contact; then, the tally would be in Category 5.
4. Category 7 or 8 is marked for each separate occurrence of head movement identified as meaning "yes" or "no." Thus, one tally would be marked when a teacher uses head movement while responding to a student.
5. Category 9 is used when the teacher moves away from contact with the class. A specific tally is used for Category 10 when the teacher movement is toward the class. Movement away from the class, even when returning to a desk or lectern, is recorded in Category 9. The teacher may remain behind a desk or lectern. This would be noted as a characteristic but would not receive separate tallies in Category 9.
6. Category 11 is for all movements that result from nervous reactions or other distracting behaviors. Included are such items as scratching head, rubbing eyes, adjusting glasses or constant manipulation of objects.
7. Each separate gesture is tallied in Category 12, even when they may be in rapid order. A gesture is considered completed when the body

movement for the gesture has passed the climax point. A shrug is completed as one gesture when the shoulders are returned to a normal position. A hand gesture is completed when the movement has been stopped sufficiently to cause a change in hand direction. For example, using the hand to indicate a whirling motion would only be one gesture. But using the hand to emphasize three separate points, such as using fingers to designate a change from point one, two, three, etc., would be tallied as separate gestures. (Head movements are recorded in Categories 7 and 8 only.)

8. Category 13 is recorded only when of sufficient duration to be clearly identified as exercising control. It is not recorded in Category 13 when a teacher uses verbal action to secure attention or control. However, a teacher may use NVC and then shift to verbal control.
9. Category 14 occurs when there is a teaching aid or a specific change in routine. A tally is recorded for each separate use of the chalkboard. A math teacher, for example, could put a problem on the board and discuss its solution. When a second problem is added to the board, an additional tally would be recorded. The key for VS is a distinct change in routine that results in student shift of attention.
10. The recommended maximum period for tabulation should be in approximately five-minute segments. Routines of observation established by an observer should follow a consistent pattern. Class periods may be divided into appropriate time blocks with set tally time for each block.
11. Analysis of nonverbal patterns by an observer should include <u>key value</u> judgments concerning class operation. Among areas to be considered are:
    a. Teacher use of time for instruction.
    b. Adequacy of teacher planning.
    c. Adequacy of student preparation.

d. Teacher management and discipline procedures.

e. Appropriateness of teacher nonverbal behaviors.

f. Specific inconsistencies in teacher nonverbal behavior.

12. Use the following definitions to determine the "type of class."

a. TEACHER-CENTERED ACTIVITY is a lecture, presentation, clarification or a question/answer type of situation.

b. AN INDIVIDUALIZED SITUATION is when students are working independently, usually alone and self-directing.

c. GROUP WORK SITUATION is where students are working in committees. They may be involved in some type of project work requiring a committee report.

d. LEARNING CENTER SITUATION is when students are working independently or in small groups but at specific, designated learning stations. These stations may be math, science, language or topical interest areas.

e. A STUDY PERIOD is when students are engaged in independent work, usually with the direct supervision of the teacher.

f. A DEMONSTRATION SITUATION is a teacher-centered activity; such as, use of equipment.

g. OTHER situations will require a written description by the recorder.